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Title: GENERATING AND MATCHING HASHES OF MULTIMEDIA CONTENT

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IN THE CLAIMS

1.-2. (Canceled)

- (Previously Presented) The method as claimed in claim 27, wherein the property of a neighboring band or block constitutes said threshold.
- (Previously Presented) The method as claimed in claim 27, wherein the property of a corresponding band or block in a previous frame constitutes said threshold.
- (Previously Presented) The method as claimed in claim 27, wherein the bands or blocks are frequency bands of the frequency spectrum of the respective frame of the unidentified information signal.
- (Original) The method as claimed in claim 5, wherein the frequency bands have an increasing bandwidth as a function of the frequency.
- (Original) The method as claimed in claim 5, wherein said property is the energy of a frequency band.
- (Original) The method as claimed in claim 5, wherein said property is the tonality of a frequency band.
- (Previously Presented) The method of claim 26, wherein the dividing of the unidentified information signal into frames includes dividing the unidentified information signal into overlapping frames.

10. (Previously Presented) The method as claimed in claim 27, wherein the unidentified information signal is a video signal, the frames of which are divided into blocks, the mean luminance of a block constituting the property of said block.

11.-17. (Canceled)

18. (Previously Presented) A method to match a hash value representing an unidentified information signal with a plurality of hash values stored in a database and to identify a respective one of a plurality of information signals, the method comprising:

receiving said hash value in the form of a plurality of reliable hash bits and unreliable hash bits:

searching in the database the stored hash values for which holds that the reliable bits of the applied hash value match the corresponding bits of the stored hash value while ignoring unreliable bits of the applied hash value and corresponding bits of the stored hash value;

for each stored hash value found in response to the searching step (b), calculating the bit error rate between the reliable bits of the hash value representing the unidentified information signal and the corresponding bits of the stored hash value:

determining for which stored hash values the bit error rate is minimal; and returning an identification of the respective one of the plurality of information signals that corresponds to the minimal bit error rate.

19. (Previously Presented) A method to match a hash signal representing an unidentified information signal with a plurality of hash signals stored in a database and to identify a respective one of a plurality of information signals, the method comprising:

receiving said hash signal in the form of a series of hash values, each hash value having reliable hash bits and unreliable hash bits;

applying one of the hash values of said series to the database;

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searching in the database the stored hash values for which holds that the reliable bits of the applied hash value match the corresponding bits of the stored hash value while ignoring unreliable bits of the applied hash value and corresponding bits of the stored hash value;

for each stored hash value found in response to the searching:

selecting in the database the corresponding series of stored hash values:

calculating the bit error rate between the reliable bits of the series of hash values representing the unidentified information signal and the corresponding bits of the selected series of hash values in the database while ignoring unreliable bits of the series of hash values and corresponding bits of the selected series of hash values in the database; and

determining for which series of stored hash values the bit error rate is minimal; and returning an identification of the respective one of the plurality of information signals that corresponds to the minimal bit error rate.

20. (Previously Presented) The method as claimed in claim 19, further comprising repeating the applying, searching, selecting, calculating, determining and returning for other hash values of the unidentified information signal until a series of stored hash values is found for which the bit error rate is minimal, wherein the returning returns the identification of the respective one of the plurality of information signals that corresponds to this minimal bit error rate.

21. - 25. (Canceled)

26. (Previously Presented) The method of claim 18, further comprising generating the hash value, the generating of the hash value comprising:

dividing the unidentified information signal into frames;

computing a hash word for each frame; and

concatenating successive hash words to constitute the hash value.

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27. (Previously Presented) The method of claim 26, wherein the computing of a hash word for each frame includes:

dividing each frame of the information signal into one of bands or blocks; calculating a property of the signal in each of said bands or blocks; comparing the properties in the bands or blocks with respective thresholds; and generating respective bits of the hash word based on the results of said comparisons.

 (Previously Presented) The method as claimed in claim 18, wherein the unidentified information signal is an audio signal.

29. (New) A system comprising:

a receiving module to receive a subject hash value in the form of a plurality of reliable hash bits and unreliable hash bits, the hash value representing an unidentified information signal:

a searching module to search, in a database, stored hash values for which holds that the reliable bits of the hash value representing the unidentified information signal match the corresponding bits of the stored hash value while ignoring unreliable bits of the hash value representing the unidentified information signal and corresponding bits of the stored hash value;

a bit error evaluator to:

calculate the bit error rate between the reliable bits of the hash value representing the unidentified information signal and the corresponding bits of the stored hash value for each stored hash value found in response to the search, and

determine for which stored hash values the bit error rate is minimal; and

a return module to return an identification of the respective one of the plurality of information

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signals that corresponds to the minimal bit error rate.

30. (New) The system as claimed in claim 29, wherein the unidentified information signal is

an audio signal.

31 (New) The system of claim 29, further comprising a hash value generator to:

divide the unidentified information signal into frames;

compute a hash word for each frame; and

concatenate successive hash words to constitute the hash value representing the unidentified

information signal.

32. (New) The system of claim 29, wherein the hash value generator is to divide the

unidentified information signal into frames by dividing the unidentified information signal into

overlapping frames.

33. (New) The system of claim 29, wherein the hash value generator is to compute a hash

word for each frame by:

dividing each frame of the information signal into one of bands or blocks;

calculating a property of the signal in each of said bands or blocks;

comparing the properties in the bands or blocks with respective thresholds; and

generating respective bits of the hash word based on the results of said comparisons.

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34. (New) The system as claimed in claim 33, wherein the property of a neighboring band or block constitutes said threshold.

 (New) The system as claimed in claim 33, wherein the property of a corresponding band or

block in a previous frame constitutes said threshold.

(New) The system as claimed in claim 33, wherein the unidentified information signal is

video signal, the frames of which are divided into blocks, the mean luminance of a block constituting the property of said block.

- 37. (New) The system as claimed in claim 33, wherein the bands or blocks are frequency bands of the frequency spectrum of the respective frame of the unidentified information signal.
- 38. (New) The system as claimed in claim 37, wherein the frequency bands have an increasing bandwidth as a function of the frequency.
- (New) The system as claimed in claim 37, wherein said property is the energy of a frequency

band.

40. (New) The system as claimed in claim 37, wherein said property is the tonality of a frequency

band.

41. (New) A system to match a hash signal representing an unidentified information signal with a plurality of hash signals stored in a database and to identify a respective one of a plurality of information signals, the system comprising:

a receiving module to receive said hash signal in the form of a series of hash values, each hash

value having reliable hash bits and unreliable hash bits;

an applying module to apply one of the hash values of said series to the database;

a searching module to search in the database the stored hash values for which holds that the

reliable bits of the applied hash value match the corresponding bits of the stored hash value while

ignoring unreliable bits of the applied hash value and corresponding bits of the stored hash value;

a selecting module to select in the database the corresponding series of stored hash values for

each stored hash value found in response to the searching;

a calculating module to calculate the bit error rate between the reliable bits of the hash value

representing the unidentified information signal and the corresponding bits of the selected series

of hash values in the database while ignoring unreliable bits of the series of hash values and

corresponding bits of the selected series of hash values in the database;

a determining module to determine for which series of stored hash values the bit error rate is

minimal; and

a returning module to return an identification of the respective one of the plurality of information

signals that corresponds to the minimal bit error rate.

42. (New) The system as claimed in claim 41, wherein:

the applying module, the searching module, the selecting module, the calculating module, and the

determining module are to repeat applying, searching, selecting, calculating, determining, and

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returning respectively for other hash values of the unidentified information signal until a series of stored hash values is found for which the bit error rate is minimal, wherein the returning module to return the identification of the respective one of the plurality of information signals that corresponds to this minimal bit error rate.